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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,569	07/21/2004	PETER T. WU	19.0368	4568

23718 7590 04/18/2007  
SCHLUMBERGER OILFIELD SERVICES  
200 GILLINGHAM LANE  
MD 200-9  
SUGAR LAND, TX 77478

EXAMINER
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FULLER, ROBERT EDWARD

ART UNIT	PAPER NUMBER
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3672

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/18/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/710,569		WU, PETER T.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Robert E. Fuller		3672	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment, dated January 25, 2007, has been considered. The terminal disclaimer filed January 25 has been reviewed and approved, and the double patenting rejection has been overcome. Applicant's amendment to claim 1 has overcome the rejection under 35 U.S.C. 101 of claims 1-3, 7, and 8, but claims 4 and 5 remain rejected. With regard to the prior art, based on a new interpretation of a previously cited reference, some of the claims have been rejected under 35 U.S.C. 102(b). Accordingly, this office action has not been made final.

### ***Claim Rejections - 35 USC § 101***

1. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 4 and 5 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

These claims do not provide concrete, tangible results. While claims 2 and 3 provide real world results such as generating a histogram and identifying identifying a maximum fluid mode slowness from the histogram, claims 4 and 5 seem to recite theoretical steps. The connection between these steps and the real world is not clear. For example, in claim 5, it appears that it is necessary to include a step of generating a graph of the fluid mode slowness as a function of frequency, which could then be used to determine the maximum slowness.

### ***Claim Rejections - 35 USC § 102***

Art Unit: 3672

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-8 and 9-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Gouilloud (US 4,628,725).

With regard to claims 1-8, Gouilloud teaches a method for detecting a gas intrusion (kick) in a borehole, comprising acquiring measurements with a sonic tool (12, 14, 16, and 18), determining borehole mud slowness from the set of measurements, and comparing the mud slowness with a selected criterion to detect a kick (see column 11, lines 32-36). Although Gouilloud specifically discusses using the velocity of Stoneley waves to detect gas intrusion into the well, it seems that a calculation of slowness is inherent in Gouilloud's method, as slowness is merely the reciprocal of velocity. Furthermore, using a *minimum* Stoneley energy to detect a kick, as taught by Gouillard, is mathematically similar to using a *maximum* slowness to detect a kick, as the Stoneley wave energy is simply a mathematical manipulation of the wave slowness.

With regard to claims 9-15, Gouilloud discloses a sonic sensor (12, 14, 16, 18) and circuitry (42). The circuitry of Gouilloud is capable of being configured to accomplish any of the tasks recited in these claims.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 3672

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claim 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gouilloud in view of Rester (US 2002/0134587).

With regard to claim 16, Gouilloud fails to disclose a telemetry link which sends a warning uphole if a kick is detected.

Rester discloses a drilling system having a telemetry link which warns an operator at the surface of an impending kick (see paragraph 0069, lines 16-20).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have added the kick alarm disclosed by Rester to the apparatus of Gouilloud, as it was notoriously well known in the art that an undetected and unmitigated intrusion of high pressure gas into a wellbore can potentially be catastrophic.

With regard to claim 17, Gouilloud discloses sonic sensors (12, 14, 16, and 18) and processor means (42), but fails to disclose the processor means being capable of triggering a warning signal when the mud slowness exceeds a selected criterion.

Art Unit: 3672

Rester discloses a drilling system having a processor which warns an operator at the surface of an impending kick (see paragraph 0069, lines 16-20).

It would have been considered obvious to one of ordinary skill in the art; at the time the invention was made, to have programmed the processor of Gouilloud to send an alarm signal to an operator as taught by Rester, as it was notoriously well known in the art that an undetected and unmitigated intrusion of high pressure gas into a wellbore can potentially be catastrophic.

With regard to claims 18-20, the processor means disclosed by Gouilloud is capable of being programmed to accomplish any of the tasks recited in these claims.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

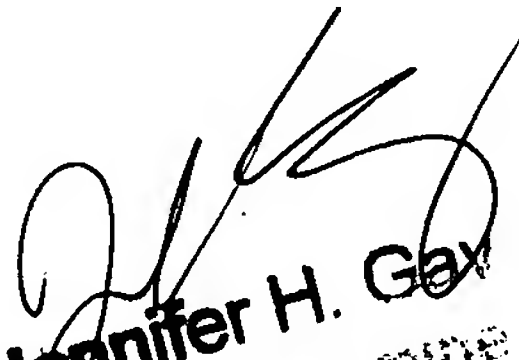
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert E. Fuller whose telephone number is 571-272-0419. The examiner can normally be reached on Monday thru Friday from 8:00 AM - 5:30 PM. The examiner is normally out of the office every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3672

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

04/12/2007  
REF

  
Jennifer H. Gay  
Primary Examiner